

## PUK2

**LINKING CNI REGIMEN ADHERENCE TO HOSPITAL DAYS AND HEALTH CARE COSTS**Legorreta AP<sup>1</sup>, Gilmore AS<sup>2</sup>, Marehbian J<sup>2</sup>, Naujoks C<sup>3</sup>, Kilburg A<sup>3</sup><sup>1</sup>UCLA School of Public Health, Los Angeles, CA, USA, <sup>2</sup>Health Benchmarks, Inc, Woodland Hills, CA, USA, <sup>3</sup>Novartis Pharma AG, Basel, Switzerland

**OBJECTIVES:** The advantages of improved adherence to immunosuppression include reduced morbidity, mortality, and health care costs. Our aim was to examine calcineurin inhibitor (CNI) adherence following kidney transplantation and the effect on hospital days and health care costs. **METHODS:** US claims data from 10 US health plans for de novo patients receiving kidney transplants between 1995 and 2005 were employed. Patients with  $\geq$  one post-transplant claim for cyclosporine modified (CsA) or tacrolimus (tac) were included. CNI adherence was defined as the medication possession ratio (MPR) or the number of therapy days supplied to the number of followup days during the year following the first CNI claim. Patients who switched to another CNI medication or were not continuously enrolled in the health plan were excluded. Zero-inflated negative binomial regression was used to examine the relationship between CNI adherence and hospital days. **RESULTS:** Of 821 enrolled patients, 51% were in the CsA and 49% in the tac cohorts. The groups were not different with regard to age, gender, income, level of comorbidity, or number of hospital days during the adherence measurement period. A total of 28% of the CsA group was 100% adherent (MPR = 1) compared to 21% in the tac group ( $p = 0.02$ ). Holding patient characteristics and prior utilization constant, receiving CsA was associated with 15 (95% CI: 5, 40) fewer hospital days compared to tac. Also, increasing levels of adherence by one standard deviation reduced days spent in the hospital by 12 (95% CI: 9, 30). This difference in hospital days likely impacted total health care costs, which were significantly lower for CsA (\$13,949) compared to tac (\$20,896) during the same period ( $p = 0.009$ ). **CONCLUSIONS:** Receiving cyclosporine modified following transplantation was associated with higher levels of adherence, fewer hospitalizations, and lower total health care costs.

## PUK3

**BUDGET IMPACT ANALYSIS OF INCLUDING RENAL REPLACEMENT THERAPY IN THE BENEFIT PACKAGE OF UNIVERSAL COVERAGE IN THAILAND**

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**OBJECTIVES:** To estimate the amount of government health budget required for the extension of access to renal replacement therapy (RRT) towards beneficiaries of the universal health care coverage (UC) scheme in Thailand. Ability of the government to bear the increasing budget and appropriate measures to cope with anticipated costs of including RRT in the benefit package were also investigated. **METHODS:** Literature review on demand for RRT at both domestic and international levels, and the estimate of costs for haemodialysis and continuous peritoneal dialysis in Thailand. From the government perspective, several scenarios of budget requirements according to the estimated costs for RRT and possible rationing criteria were calculated. **RESULTS:** The government would spend approximately more than five billion Baht during the first year of implementation, if there is neither strategy to reduce the costs for RRT nor appropriate selection criteria for end-stage renal disease patients. The budget for universal access to RRT would increase to 74,355 million Baht in the sixteenth year of implementation if the government played passive roles in controlling costs of the program.

The budget required would reduce to 58% of the estimate if the government introduced the rationing criteria for patients aged less than 60 years. **CONCLUSIONS:** The policy on the extension of access to RRT should be considered carefully by the government because of its financial impact on the government health budget. Appropriate interventions including effective measures to control costs of RRT, strategies to reduce the incidence of end-stage renal disease, and the rationing criteria for access to RRT are needed if the decision to implement the policy is made.

## PUK4

**AN ECONOMIC EVALUATION OF DE NOVO RENAL TRANSPLANT RECIPIENTS USING BRANDED (B-CSA) VS. NON-BRANDED CYCLOSPORINE MODIFIED (NB-CSA)**Helderman JH<sup>1</sup>, Gilmore AS<sup>2</sup>, Ryskina K<sup>2</sup>, Legorreta AP<sup>3</sup>, Naujoks C<sup>4</sup>, Machnicki G<sup>4</sup><sup>1</sup>Vanderbilt University, Nashville, TN, USA, <sup>2</sup>Health Benchmarks, Inc, Woodland Hills, CA, USA, <sup>3</sup>UCLA School of Public Health, Los Angeles, CA, USA, <sup>4</sup>Novartis Pharma AG, Basel, Switzerland

**OBJECTIVES:** Despite concerns regarding bioequivalence of NB-CsA to B-CsA, generics constitute the second most widely used form of CsA in the US. We assessed whether potential cost savings associated with the lower acquisition cost of generics are realized with NB-CsA. **METHODS:** Claims data from eight commercial health plans were linked to Organ Procurement Transplant Network data. De novo kidney recipients with  $\geq 1$  pharmacy claim for B-CsA ( $n = 247$ ) or NB-CsA ( $n = 64$ ) were included. Information was collected for 1 year before and after initial (index) CsA claim. Patients who switched between study drugs or had  $< 1$  year pre- or post-index data were excluded. Log transform regression with backward selection was used to model costs in the first year post-index. Statistical significance of cohort differences in predicted costs was determined by bootstrapping with 1000 repetitions. **RESULTS:** Baseline demographics were similar between the two cohorts; 62% male, 60% age  $> 45$  years, and 10% African American. Total prescription medication costs were higher for NB vs. B-CsA (\$14,233 vs. \$12,606,  $p = 0.04$ ), reflecting higher costs for both immunosuppressant (IS) and non-IS drugs incurred by the NB-CsA cohort. NB-CsA patients had higher inpatient costs (\$17,459 vs. \$7904), more hospitalizations (4.5 vs. 3.2, respectively), and slightly higher outpatient costs (\$8547 vs. \$7477) vs. B-CsA. Utilization for gastrointestinal symptoms (e.g., abdominal pain, vomiting, diarrhea) was higher in the NB vs. B-CsA cohort (13% vs. 5%,  $p = 0.04$ ) as were total health care costs (\$40,239 vs. \$27,988,  $p = 0.07$ ). After controlling for patient characteristics and pre-transplant costs, total costs were 27% higher ( $p = 0.03$ ) for NB vs. B-CsA. For the average patient taking NB vs. B-CsA, predicted costs were \$8291 higher (95% CI: \$122, \$21,278). **CONCLUSIONS:** Despite lower acquisition cost of generics, de novo renal transplant recipients initiated on NB-CsA incurred increased health care costs, which appeared to be driven by costly pharmacy and inpatient utilization.

## PUK5

**COSTS AND COST-EFFECTIVENESS OF EPOETIN IN PATIENTS WITH CHRONIC RENAL INSUFFICIENCY DURING THE PREDIALYSIS PERIOD IN POLAND**Niewada M<sup>1</sup>, Kowalik E<sup>2</sup>, Jakubczyk M<sup>3</sup>, Rutkowski B<sup>4</sup>, Szkulciecka-Debek M<sup>5</sup><sup>1</sup>Medical University of Warsaw, Warsaw, Poland, <sup>2</sup>Institute of Cardiology, Warsaw, Poland, <sup>3</sup>Warsaw School of Economics, Warsaw, Poland, <sup>4</sup>Medical University of Gdansk, Gdansk, Poland, <sup>5</sup>Roche Polska Sp. z o.o., Warsaw, Poland

**OBJECTIVES:** The study objective was to assess costs and the cost effectiveness of early and late epoetin administration in chronic renal insufficiency during the predialysis period in Poland. **METHODS:** The analysis was based on clinical data from systematic literature review. Only direct medical costs were included into the study. The effectiveness was expressed as death or dialysis avoided. The cost-effectiveness analysis from the payer perspective was conducted. **RESULTS:** The mean individual treatment cost of early and late epoetin administration in chronic renal insufficiency during the predialysis period was estimated for €3597 (1 € = 4.035 PLN) and €2163, respectively. The cost of death or dialysis avoided in the early and late introduced epoetin treatment amounted to €5058 and €4429, respectively. However 14% increment of this equation in patients early treated with epoetin resulted in over 50% decrement of end point appearance (initiation of dialysis or death). **CONCLUSIONS:** For the majority of patients early treatment with epoetin translates into significant delay of renal replacement therapy. Early introduction of epoetin treatment in chronic renal insufficiency patients before dialysis is cost-effective.

PUK6

**COST-EFFECTIVENESS OF TREATMENT WITH EPOETIN ALPHA FOR PATIENTS WITH ANAEMIA DUE TO RENAL FAILURE—THE CASE OF SWEDEN**

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Anaemia is a common complication of renal failure. Anaemia can be treated with erythropoietin (EPO) administration, RBC transfusion, or a combination of both. EPO has been registered for treatment of renal anaemia in Sweden since the beginning of the 1990s, and is the primary treatment regimen for anaemia related to renal failure. **OBJECTIVE:** The objective of this study was to carry out a cost-effectiveness analysis of treatment with epoetin alpha compared to treatment with RBC transfusion for patients with anaemia associated with renal failure in Sweden. **METHOD:** Incremental costs associated with EPO treatment compared with the traditional treatment therapy of blood transfusion (costs of EPO, iron supplementation, administration and surveillance, EPO complications and costs of blood transfusion) are estimated. Swedish treatment guidelines, patient characteristics and unit costs (provider perspective) are used throughout the study. Information about QALY gains is collected from the literature. **RESULTS:** The estimated cost per QALY gained from administration of EPO to renal patients in Sweden was found to be SEK 403,921 (EUR 43,201) on average. The cost of treatment with EPO differs widely between haemodialysis (HD) and peritonealdialysis (PD) patients due to different dosages of EPO and iron supplementation. The results were found to be sensitive regarding assumptions on QALY gains but not regarding the cost of blood transfusion. **CONCLUSION:** The estimated cost per QALY falls within the range acceptable of the value of a QALY in Sweden for both HD and PD patients. EPO administration to renal patients is much more costly in Sweden than in the UK, primarily due to higher dosage of EPO and iron supplementation in Sweden. Swedish patients, on the other hand reach higher Hb-levels than patients in the UK.

**ECONOMIC EVALUATION OF TRANSURETHRAL NEEDLE ABLATION (PROSTIVA®) VS. TRANSURETHRAL RESECTION OF THE PROSTATE (TURP) IN BENIGN PROSTATIC HYPERPLASIA (BPH) IN THE SPANISH SETTING**

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Benign prostatic hyperplasia (BPH) is common in older men affecting 40% of men in their fifties. If the enlarged gland begins to press upon the urethra and to interfere with urination, then treatment may be needed. Transurethral resection of the prostate (TURP) is a minimally invasive treatment that has become the gold standard for patients who are unwilling to remain on medication or in whom medical therapy failed. Recently a minimally invasive surgery treatment has shown similar results compared to TURP, transurethral needle ablation of the prostate (PROSTIVA®). **OBJECTIVES:** To carry out an economic evaluation of PROSTIVA® vs. TURP in non-drug respondent BHP patients in the Spanish setting. **METHODS:** A Markov model was developed in order to simulate the clinical and economical consequences of using PROSTIVA® or TURP in BHP. Four health states were considered: Intervention, therapeutic success, non-therapeutic success and permanent adverse events through a cost-effectiveness analysis. Clinical and economical data were retrieved from published clinical trials and validated by a clinician experienced in the BHP management. Perspective of the analysis was the National Health System perspective, so only direct costs were included. The time horizon was 15 years with 6 months cycles, so clinical and economical results were discounted at a 3% per year. A probabilistic sensitivity analysis (PSA) was performed in order to check the variability in the model results. All uncertain variables included were included in PSA. **RESULTS:** Mean cost per patient with PROSTIVA® was €1207 ( $p = 0.00$ ) less than patients treated with TURP, but with a decrement 0.42 QALYs ( $p = 0.00$ ), which leads us to an ICER of €2860/QALYs. Sensitivity analyses have shown consistent results across changes in all variables. **CONCLUSION:** PROSTIVA® compared to TURP has shown to be an efficient therapy for non-drug respondents BHP patients in Spain, with an ICER below accepted thresholds.

PUK8

**COST-EFFICACY OF FINASTERIDE, DOXAZOSIN AND THE COMBINATION OF BOTH IN THE TREATMENT OF BENIGN PROSTATIC HYPERPLASIA (BPH) IN FRANCE BASED ON THE MTOPS STUDY**

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BPH and associated lower urinary tract symptoms affect quality of life of older men and could require surgery. The MTOPS study demonstrated that the risk of overall clinical progression (including worsening of symptoms, acute urinary retention, urinary incontinence, renal insufficiency, or recurrent urinary infection) was significantly reduced by finasteride (−34%,  $p = 0.002$ ), doxazosin (−39%,  $p < 0.001$ ) and by the combination of both (−66%,  $p < 0.001$ ), as compared with placebo. The clinical benefit of the combination was significantly higher than the one of each individual component. MTOPS study showed also that only finasteride, alone or in combination with doxazosin reduced significantly ( $p < 0.001$ ) the risk of invasive therapy by respectively 64% and 67% compared with placebo. **OBJECTIVE:** To estimate the cost-efficacy of finasteride, doxazosin, and the combination of both in the treatment of BPH in the perspective of